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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, TED M

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,487

Applicant(s)

SUNG, PO-AN

Examiner

Ted M Wang

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/24/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6 and 7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are pending in the application.

Specification

2. The disclosure is objected to because of the following informalities:
 - Page 4 Line 11, "Fig.1 is" should be changed to "Fig.1A and Fig.1B are".
 - Page 4 line 17, "Fig.3 is" should be changed to "Fig.3A, Fig.3B, and Fig.3C are".
 - Page 4 line 19, "'Fig.1" should be changed to "Fig.1A and Fig.1B".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakano (EP0,898,379 A2).

- In regard claim 1, Nakano, cited by the instant applicant, discloses a wireless communication apparatus and wireless communication method receiving within a communications receiver a spread spectrum communications signal (Fig.1

elements 6-8) having a dedicated physical channel (Fig.6 elements 404 and 405) and common pilot channel (Fig.6 elements 401-403 and 405); estimating the Doppler change in frequency using the common pilot channel (Fig.6 elements 402 and 403); and removing the Doppler change in frequency within the dedicated physical channel using the estimated Doppler change in frequency (Fig.6 element 405 and page 7 line 36 – page 8 line 25).

- In regard claim 2, the limitation of receiving the spread spectrum communications signal within a rake receiver can further be taught in Fig.1 elements 5-8 and Fig.6 elements 401-405, page 2 lines 25-57, page 4 lines 3-7, and page 7 line 36 – page 8 line 25.
- In regard claim 3, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 4, the limitation of multiplying a channelization code into respective In-phase (I) and Quadrature (Q) channels, summing over a symbol period, and sampling to obtain respective I and Q sampled values can further be taught in page 3 lines 13-55, page 5 lines 19-35, page 6 lines 2-28, page 6 line 54 – page 7 line 32, and page 7 line 58 – page 8 line 25.
- In regard claim 5, the limitation of phase shifting and taking an arctangent of I and Q sampled values to estimate the Doppler frequency shift can further be taught in page 7 lines 1-32.
- In regard claim 6, the limitation of estimating sine and cosine values of the estimated Doppler frequency shift to be multiplied within the dedicated physical

channel can further be taught in page 3 lines 13-55, page 5 lines 19-35, page 6 lines 2-28, page 6 line 54 – page 7 line 32, and page 7 line 58 – page 8 line 25.

- In regard claim 7, the limitation of splitting the dedicated physical channel into I and Q data channels that receive an estimated Doppler change in frequency can further be taught in page 7 line 36 – page 8 line 25.
- In regard claim 8, the limitation of estimating the Doppler change in frequency within respective I and Q Doppler estimation channels can also be taught in page 7 line 36 – page 8 line 25.
- In regard claim 9, all limitation is contained in claims 2 and 6. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 10, all limitation is contained in claims 9 and 4. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 11, all limitation is contained in claims 9 and 5. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 12, all limitation is contained in claims 9 and 6. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 13, all limitation is contained in claims 9 and 7. The explanation of all the limitation is already addressed in the above paragraph.
- In regard claim 14, all limitation is contained in claims 9 and 8. The explanation of all the limitation is already addressed in the above paragraph.

- In regard claim 15, which is a receiver claim related to claim 9, all limitation is contained in claims 9. The explanation of all the limitation is already addressed in the above paragraph.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano (EP0,898,379 A2) in view of Ling et al. (US6,363,102).

- In regard claim 16, Nakano, cited by the instant applicant, discloses all of the limitation as described in the above paragraph except specifically teaching that each I and Q data channel comprises a delay circuit for receiving respective I and Q signals split from the spread spectrum communications signal at baseband and sine and cosine branches for receiving and multiplying into the sine and cosine branches the estimated Doppler change in frequency.
- Ling et al. discloses an apparatus for frequency offset correction that each I and Q data channel comprises a delay circuit (Fig.3 elements 140 and 250 and Fig.4 element 140) for receiving respective I and Q signals split from the spread spectrum communications signal at baseband (Fig.3 elements 115, 130, 220,

and 140) and sine and cosine branches for receiving and multiplying into the sine and cosine branches the estimated Doppler change in frequency (Fig.3 element 160, 240, 170, and 190, and column 5 line 18 – column 8 line 28) in order to reduces the computational effort required to compensate for a frequency offset in the data channel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nakano's CDMA wireless communication apparatus in view of Ling's disclosure in order to reduces the computational effort required to compensate for a frequency offset in the data channel.

- In regard claim 17, the limitation of an addition circuit for adding together any multiplied product received from respective sine and cosine branches can further be taught by Nakano in page 8 lines 1-25.
- In regard claim 18, the limitation of an integrator for introducing a spreading factor when canceling any Doppler error can further be taught by Ling et al. in Fig.7 element 340 and column 7 lines 5-14.
- In regard claim 19, the limitation of each I and Q Doppler estimation channel comprises a mixer for receiving the spread spectrum communications signal at baseband and a channelization code can further be taught by Ling et al. in Fig.5 and column 5 lines 29-40.
- In regard claim 20, the limitation of each I and Q Doppler estimation channel comprises a integrator circuit can further be taught by Ling et al. in Fig.6 element 350, Fig.11 elements 340A and 340B, and column 7 lines 1-33. All other

limitation is contained in claims 16 and 18. The explanation of all the limitation is already addressed in the above paragraph.

- In regard claim 21, the limitation that each sample and delay circuit further comprises a phase shifter can further be taught by Nakano in Fig.6 element 405 and page 7 lines 36-57.
- In regard claim 22, the limitation that each sample and delay circuit further comprises a multiplier for receiving a delay signal from the respective other I or Q Doppler estimation channel can further be taught by Ling et al. in Fig.5 and column 8 lines 23-28.

Conclusion

7. References US6,680,969 and US6,700,919 are cited because they are put pertinent to the CDMA with Doppler frequency shift. However, none of references teach detailed connection as recited in claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M Wang whose telephone number is (703) 305-0373. The examiner can normally be reached on 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



Ted M Wang
Examiner
Art Unit 2634

SHUWANG LIU
PRIMARY EXAMINER

Ted M. Wang